



# UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,378	11/25/2003	Nobuyuki Sekikawa	492322001810	4282

7590 03/08/2006

Barry E. Bretschneider  
Morrison & Foerster LLP  
Suite 300  
20001650 Tysons Boulevard  
McLean, VA 22102

EXAMINER
----------

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/720,378

Applicant(s)

SEKIKAWA ET AL.

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/05/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/925,628.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/06/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Acknowledgement is made of papers filed on December 06, 2005 has been entered and forwarded to the examiner on December 08, 2005.claiming priority from parent case U.S. Serial No. 10/720,378 filed on 11/25/2003 which itself claims priority from U.S. Serial No. 09/925,628 ( now USP No. 6,690,070) filed on August 10, 2001 which in turn claims priority from JP- 2000-242617 filed on August 10, 2000.

### ***Specification***

The first sentence of the specification must include the correct status of any application e.g. now Patent No. , to any prior referenced patent application.

The amendment filed on November 25, 2003 does not include now U.S Patent No. 6,690,070 after 09/925628.

Appropriate correction is required.

### ***Preliminary Amendment***

Applicants' RCE request included a request that the amendment filed on November 03, 2005 be entered.

Therefore claims 6-7 as amended by the preliminary amendment and claims 8-11 as previously recited are currently pending in the Application.

### ***Information Disclosure Statement***

The Ids filed December 06, 2005 has been considered to the extent understood from the partial translation provided.

Art Unit: 2814

The initialed copy of the PTO-TO-1449 has been included herewith and the contract staff instructed to mail a copy of the same along with this Office Action.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 to 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moslehi ( U.S. Patent No. 5,397,909 herein after Moslehi) in view of Araki et al. ( U.S. Patent No. 5,882,994, herein after Araki).

With respect to claim 6 Moslehi describes a method of manufacturing an insulated gate semiconductor device, comprising : forming a first gate oxide film on a semiconductor substrate of a first conductivity type( Moslehi fig. 2 # 46 over 38) forming a first silicon layer on the first gate oxide film ( fig3 # 50) ; forming an oxidation protection film having a predetermined pattern on the first silicon layer ( fig. 3 # 52) ; forming a field oxidation film( fig. 3 # 42) and a second gate oxide film through selective oxidation by using the oxidation protection film as a mask,

Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask.

However, Araki, a patent from the same filed of endeavor, describes in figures 6-7 and col. 4 lines 51-65, etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to form insulators with enhanced insulation characteristics and charge storage characteristics ( Arakai col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; ( Araki figure 7 106 in contact with 105).


The remaining limitations of claim 1 are :

forming a second silicon layer covering the first silicon laver remaining after the selective oxidation the second gate oxide film and the field oxidation film after removing the oxidation protection film, ( Araki fig. 8 # 107, col. 4 line 56-58 col. 14 line 16) isolating a portion of the second silicon layer by etching so that the isolated portion of the second silicon layer covers at least pad of the second gate oxide film and a portion of the remaining first silicon laver, ( Araki col. 4 lines 56-65) forming a source layer or a drain layer which is of a second conductivity type. ( Moslehi figure 3 col. 10 lines 50-55)., wherein the formation of the filed oxidation film and the second gate oxide film is performed after the formation of the first silicon layer, and the formation of the second of the second silicon layer is performed after the formation of the filed oxidation film and the second gate oxide film. ( Moslehi and Araki, because current case law the applied Moslehi and Araki to gather teach or suggest the claimed order of forming the first silicon layer, the filed oxidation and second gate oxide films and the second silicon layer

Art Unit: 2814

is not persuasive because the claims as presently recited are not commensurate in scope with Applicants' contention .

Applicants' claims presently use the open ended language comprising which does not exclude any order of performing the steps.

If Applicants' want their specific order of performing steps to be given patentable weight then the claims must recite that the steps are only performed in the order recited or similar to language to exclude other sequences. Herein while the sequence is recited other sequences are not excluded. 

With respect to claim 7 Moslehi describes a method of manufacturing an insulated gate semiconductor device comprising'. forming a low impurity concentration source layer and a low impurity concentration drain layer which are of a second conductivity type Moslehi figure 4 # 58, col.12 lines 25-30) in a semiconductor substrate of a first conductivity type; ( Moslehi figure 4 # 38, col. 10 lines 50-55) forming a first gate oxide film on the semiconductor substrate', ( Moslehi figure 2 # 48, col. 1 1 lines 23-25) forming a first silicon layer on the first gate oxide film ( Moslehi fig. 3 #50 over 48, col.1 1 line 35) forming an oxidation protection film having a predetermined pattern on the first Silicon layer ( Moslehi fig. 3 #52, col. 1 1 line 20) forming a field oxidation film ( Moslehi fig. 4 #42, col. 10 line 59)

Moslehi does not specifically describe second gate oxide through selective oxidation by using the oxidation protection film as a mask the second gate oxide being in contact with the first gate oxide film.

However, Araki, a patent from the same filed of endeavor, describes in figures 6-7 and col. 4 lines 51-65, etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to form insulators with enhanced insulation characteristics and charge storage characteristics ( Arakai col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; ( Araki figure 7 106 in contact with 105).

The remaining limitations of claim 7 are :

isolating a portion of the second silicon layer by etching so that the isolated portion of the second silicon layer is positioned between the low impurity concentration source and drain layers and covers the remaining first silicon layer and at least part of the second gate oxide; and forming ; ( Araki col. 4 lines 56-65) light impurity concentration source layer of the second conductivity type in the low impurity concentration source layer and forming a high impurity concentration drain layer of the second conductivity type in the low concentration drain layer. ( Moslehi figure 7, col. 13 lines 49 to 55).

wherein the formation of the field oxidation film and the second gate oxide film is performed after the formation of the first silicon layer and the formation of the second silicon layer is performed after the formation of the field oxidation film and the second gate oxide film. ( Moslehi and Araki, because current case law the applied Moslehi and Araki to gather teach or suggest the claimed order of forming the first silicon layer, the

Art Unit: 2814

filed oxidation and second gate oxide films and the second silicon layer is not persuasive because the claims as presently recited are not commensurate in scope with Applicants' contention .

Applicants' claims presently use the open ended language comprising which does not exclude any order of performing the steps.

If Applicants' want their specific order of performing steps to be given patentable weight then the claims must recite that the steps are only performed in the order recited or similar to language to exclude other sequences. Herein while the sequenece is recited other sequences are not excluded.

With respect to claims 8 and 10 Moslehi describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the first and second silicon layers comprise polysilicon or amorphous silicon. ( Moslehi col.II lines 37-40).

With respect to claims 9 and 11 Moslehi describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the oxidation protection layer comprises silicon nitride. ( col. 12 lines 20-25- layer 52 other than oxide col. 11 lines 29-31- nitrided oxides, etc., ).

With respect to claim 8 describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the first and second silicon layers comprise polysilicon or amorphous silicon.

With respect to claim 9 describes the method of manufacturing an insulated gate semiconductor device of claim 7, wherein the oxidation protection slm comprises silicon nitride.



Art Unit: 2814

With respect to claim 10 describes the method of manufacturing an insulated gate semiconductor device of claim 6, wherein the first and second silicon layers comprise polysilicon or amorphous silicon.

With respect to claim 11 describes the method of manufacturing an insulated gate semiconductor device of claim 6, wherein the oxidation protection film comprises silicon nitride.

### ***Response to Arguments***

Applicant's arguments filed 12/06/2005 have been fully considered but they are not persuasive for the following reasons :

Applicants' arguments are based on piece meal analysis of what the individual references Moslehi and Araki allegedly do not teach , whereas the rejection is based on the combined teachings of Moslehi and Araki.

Applicants' arguments that Moslehi does not teach or suggest the claimed "forming of a field oxidation film and a second gate oxide film through selective oxidation by using the oxidation protection film as a mask" is not persuasive because the Office Action states "Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask."

It is noted for the record that if as Applicants' desire were Moslehi to specifically describe/teach the step of forming a second gate oxide film through selective oxidation by using the oxidation protection film as a mask, the outstanding rejection would have been a 102 rejection anticipation rejection and not a 103 obviousness rejection.

Art Unit: 2814

etc. describes a second ONO insulation film to form insulators with enhanced insulation characteristics and charge storage characteristics."

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Araki's second insulating ONO layer in Moslehi's device to form insulators with enhanced insulation characteristics and charge storage characteristics ( Araki col. 1 lines 53-56) the second gate oxide film being in contact with the first gate oxide film; ( Araki figure 7 106 in contact with 105). "

Assuming Applicants' some how overcome the procedural problems set out above, it is further noted that Applicants' contention Moslehi does not teach a second gate oxide film through selective oxidation by using the oxidation protection film as a mask is not persuasive because Applicants are engaging in impermissible piecemeal analysis by restating what was stated in the rejection, namely , " Moslehi does not specifically describe a second gate oxide film through selective oxidation by using the oxidation protection film as a mask ".

One of the reasons the secondary Araki reference is applied to is show, "a second gate oxide film through selective oxidation by using the oxidation protection film as a mask" and therefore it is not necessary for the primary reference ( Moslehi) to repeat the teachings already taught by the secondary reference ( Araki) .

It is noted that current case is t' one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. ( In re Keller , 208 USPQ 871, CCPA 1981).

Art Unit: 2814

Applicants' next contention that Moslehi and Araki to gather do not teach or suggest the claimed order of forming the first silicon layer, the filed oxidation and second gate oxide films and the second silicon layer is not persuasive because the claims as presently recited are not commensurate in scope with Applicants' contention .

Applicants' claims presently use the open ended language comprising which does not exclude any order of performing the steps.

If Applicants' want their specific order of performing steps to be given patentable weight then the claims must recite that the steps are only performed in the order recited or similar to language to exclude other sequences.

If Applicants' recite claims that excludes all other sequence of performing the steps , then the merits of unexpected results can be considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is ( 571)272-1718. The examiner can normally be reached on 8.00 to 5.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fahmy Wael can be reached on (571) 272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2814

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven H. Rao

Patent Examiner

Feb. 28, 2006.



LONG PHAM  
PRIMARY EXAMINER